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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,130	10/26/2006	Jindrich Vosahlo	5724T-000007/NP	6700
27572 7590 02/06/2008 HARNES, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER DUBNOW, JOSHUA M	
			ART UNIT 2861	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/540,130	Applicant(s) VOSAHLO ET AL.	
	Examiner JOSHUA M. DUBNOW	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 125-169 is/are pending in the application.
- 4a) Of the above claim(s) 134-137, 139, 148-152, 163-166 and 168 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 125-127, 129-133, 138, 140-142, 144-147, 153-156, 158-162, 167 and 169 is/are rejected.
- 7) ☒ Claim(s) 128, 143 and 157 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :06/20/2005, 08/07/2006, 07/10/2007.

DETAILED ACTION

Receipt is acknowledged of applicant's amendment filed November 16, 2007.

Claim(s) 65-124 have been canceled without prejudice. Claim(s) 125-169 are pending, and an action on the merits is as follows.

Election/Restrictions

1. Applicant's election of Group VI, Species B in the reply filed on November 16, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 134-137, 139, 148-152, 163-166, and 168 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group and Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 16, 2007.

Claim Objections

3. Claim 140 is objected to because of the following informalities: The phrase beginning with "the arrangement of the elements" is unclear. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 127, 142, and 156 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the claims, it is unclear which LEDs or rows of LEDs make up the lines of LEDs or what the angle is being defined in relation to the rows. Because these limitations are not clearly defined, the claims are indefinite.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 125-127, 129, 130, 132, 133, 140-142, 144-146, 154-156, 158, 160, 161, and 169 are rejected under 35 U.S.C. 102(b) as being anticipated by **Cleary et al. (U.S. Publication # 2002/0149660)**.

Considering **claim 125**, Cleary et al. discloses (Figure 2A) an array of light emitting diodes (24) adapted for use in curing ink in an inkjet printer (paragraphs 0037, 0045). The light emitting diodes (LEDs) expose the ink to ultraviolet radiation that sets or partially cures the ink beginning the curing process. The ink can then be fully cured with more UV radiation.

Considering **claim 126**, Cleary et al. discloses a radiation source for use in curing fluid in a printer comprising an array of LEDs (24) that comprises adjacent rows of LEDs (24-1, 24-2). The rows of LEDs are offset from each other across the printheads (28) (Figure 2A).

Considering **claim 127**, and as applied to claim 126 above, Cleary et al. discloses that the adjacent rows (24-1, 24-2) are offset from each other. Because these rows are offset across the printheads (Figure 2A), there are no lines of LEDs that extend at an angle to the rows of LEDs.

Considering **claim 129**, and as applied to claim 126 above, Cleary et al. discloses that the source emits UV radiation (paragraph 0037).

Considering **claim 130**, and as applied to claim 126 above, Cleary et al. discloses that the source is elongate (Figure 2A).

Considering **claim 132**, and as applied to claim 126 above, Cleary et al. discloses that the source cures ink in an inkjet printer (paragraphs 0037, 0045). The light emitting diodes (LEDs) expose the ink to ultraviolet radiation that sets or partially cures the ink beginning the curing process. The ink can then be fully cured with more UV radiation.

Considering **claim 133**, Cleary et al. discloses an apparatus for use in curing radiation curable fluid comprising an array of LEDs (24) that comprises adjacent rows of LEDs (24-1, 24-2). The rows of LEDs are offset from each other across the printheads (28) (Figure 2A).

Considering **claim 140**, Cleary et al. discloses a printer for use in printing a fluid onto a substrate, the printer comprising a radiation source (24) of elements in an array. The printer provides relative movement between the source and the substrate in a curing direction (paragraph 0034). The radiation source comprises radiation emitting elements (24-1, 24-2) in an array. The arrangement of the elements in the array is such that they are not aligned in a column aligned with the curing direction (Figures 2A, 2B).

Considering **claim 141**, and as applied to claim 140 above, Cleary et al. discloses that the array comprises adjacent rows of LEDs (24-1, 24-2). The rows of LEDs are offset from each other across the printheads (28) (Figure 2A).

Considering **claim 142**, and as applied to claim 140 above, Cleary et al. discloses that the adjacent rows (24-1, 24-2) are offset from each other. Because these rows are offset across the printheads (Figure 2A), there are no lines of LEDs that extend at an angle to the rows of LEDs.

Considering **claim 144**, and as applied to claim 140 above, Cleary et al. discloses that the source emits UV radiation (paragraph 0037).

Considering **claim 145**, and as applied to claim 140 above, Cleary et al. discloses that the elements of the source comprise light emitting diodes (100) (paragraph 0042).

Considering **claim 146**, and as applied to claim 140 above, Cleary et al. discloses that the source is elongate (Figure 2A).

Considering **claim 154**, and as applied to claim 140 above, Cleary et al. discloses that the fluid is ink (paragraph 0034).

Considering **claim 155**, Cleary et al. discloses an apparatus for use in curing fluid in a printer, the apparatus comprising a radiation source (24) of elements in an array. The array comprises adjacent rows of elements (24-1, 24-2). The rows of LEDs are offset from each other across the printheads (28) (Figure 2A).

Considering **claim 156**, and as applied to claim 155 above, Cleary et al. discloses that the adjacent rows (24-1, 24-2) are offset from each other. Because these rows are offset across the printheads (Figure 2A), there are no lines of LEDs that extend at an angle to the rows of LEDs.

Considering **claim 158**, and as applied to claim 155 above, Cleary et al. discloses that the source emits UV radiation (paragraph 0037).

Considering **claim 160**, and as applied to claim 155 above, Cleary et al. discloses that the elements of the source comprise light emitting diodes (100) (paragraph 0042).

Considering **claim 161**, and as applied to claim 155 above, Cleary et al. discloses that the source is elongate (Figure 2A).

Considering **claim 169**, Cleary et al. discloses a radiation source for use in curing a fluid in a printer, the source includes an array of radiation emitting elements (24-1, 100-1). The elements are arranged in an array which is one dimensional so a non-rectangular arrangement (Figures 2A, 8A).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 131, 147, and 162 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cleary et al. (U.S. Publication # 2002/0149660)** in view of **Mills et al. (U.S. Publication # 2003/0035037)**.

Considering **claim 131, claim 147, and claim 162**, and as applied to claim 126, claim 140, and claim 155 above, Cleary et al. discloses a radiation source comprising all of the claimed limitations discussed above.

Cleary et al. fails to explicitly disclose means for varying the power of the radiation source.

However, Mills et al. teaches a printing system with a similar radiation source of LEDs. A controller increases and decreases the current to the LEDs to adjust the timing, intensity, and duration of the radiation emission (paragraphs 0067, 0078). In other words, the supplied current adjusts the pulse rate of UV radiation from the LED to precisely control the amount and timing of energy that is transmitted.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the radiation source of Cleary et al. with the teaching of Mills et al. so that the amount of power used to emit radiation can be varied to control and conserve during the printing and curing process.

10. Claims 153 and 159 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cleary et al. (U.S. Publication # 2002/0149660)**.

Considering **claim 153** and **claim 159**, and as applied to claim 140 and claim 155 above, Cleary et al. discloses a printer comprising all of the claimed limitations discussed above. While Cleary et al. does not explicitly disclose that 90% of the radiation emitted has a wavelength in within a 50nm band, it is specified that the LEDs emit radiation over a very narrow bandwidth (paragraph 0042). As shown in Figure 10B, the vast majority of the radiation is emitted within a wavelength bandwidth close to 50nm. Therefore, it would have been obvious to one of ordinary skill in the art to have at least 90% emitted in this region to eliminate wasted energy and to set and cure the fluid quickly and efficiently.

11. Claims 138 and 167 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cleary et al. (U.S. Publication # 2002/0149660)** in view of **Richards (U.S. Publication # 2003/0227527)**.

Considering **claim 138** and **claim 167**, and as applied to claim 133 and claim 155 above, Cleary et al. discloses an apparatus comprising all of the claimed limitations discussed above. Cleary et al. fails to specifically disclose but Richards teaches a cooling element to cool the radiation source emitting UV radiation (paragraph 0049). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Cleary et al. with the teaching of

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Richards to include a cooling element in order for the radiation source to not become overheated and to prevent other sensitive elements from becoming too hot.

Allowable Subject Matter

12. Claims 128, 143, and 157 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takabayashi (U.S. Patent # 7,104,642), Hasebe et al. (U.S. Publication # 2004/0189771), Oshima et al. (U.S. Publication # 2006/0007290).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA M. DUBNOW whose telephone number is (571)270-1337. The examiner can normally be reached on Monday-Friday, 8:30-5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



MATTHEW LUU

SENIOR PATENT EXAMINER

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MATTHEW LUU
SUPERVISORY PATENT EXAMINER

/Joshua M Dubnow/
Examiner, Art Unit 2861

January 25, 2008